

COPY

-1-

SEQUENCE LISTING

<110> Krieg, Arthur M.
Weiner, George

<120> Methods and Products for Stimulating the
Immune System Using Immunotherapeutic Oligonucleotides and
Cytokines

<130> C1039/7026/HCL

<150> US 60/080,729

<151> 1998-04-03

<160> 105

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 1

gctagacgtt agcgt

15

<210> 2

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 2

gctagatgtt agcgt

15

<210> 3

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<221> modified_base

<222> (7)...(7)

<223> m5c

<223> Synthetic

<400> 3

gctagacgtt agcgt

15

<210> 4
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (13)...(13)
<223> m5c

<400> 4
gctagacgtt agcgt

15

<210> 5
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 5
gcatgacgtt gagct

15

<210> 6
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 6
atggaaggtc cagcgttctc

20

<210> 7
<211> 20
<212> DNA
<213> SArtificial Sequence

<220>
<223> Synthetic Sequence

<400> 7
atcgactctc gagcgttctc

20

<210> 8
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (3)...(3)
<223> m5c

<221> modified_base
<222> (10)...(10)
<223> m5c

<221> modified_base
<222> (14)...(14)
<223> m5c

<400> 8
atcgactctc gacggttctc

20

<210> 9
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (3)...(3)
<223> m5c

<400> 9
atcgactctc gacggttctc

20

<210> 10
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (18)...(18)
<223> m5c

<400> 10
atcgactctc gacggttctc

20

<210> 11
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 11
atcgactctc gaacgttctc 20

<210> 12

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 12
gagaacgctg gaccttccat 20

<210> 13

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 13
gagaacgctc gaccttccat 20

<210> 14

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 14
gagaacgctc gaccttcgat 20

<210> 15

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 15
gagcaagctg gaccttccat 20

<210> 16

<211> 20

<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (6)...(6)
<223> m5c

<400> 16
gagcacgctg gaccttccat

20

<210> 17
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (14)...(14)
<223> m5c

<400> 17
gagaacgctg gaccttccat

20

<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 18
gagaacgatg gaccttccat

20

<210> 19
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 19
gagaacgctc cagcactgat

20

<210> 20
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 20
ccatgctcggc cctgatgct 19

<210> 21
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 21
tccatgctgg tctgatgct 20

<210> 22
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (8)...(8)
<223> m5c

<400> 22
tccatgctgg tctgatgct 20

<210> 23
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (12)...(12)
<223> m5c

<400> 23
tccatgctgg tctgatgct 20

<210> 24
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 24
tccatgacgt tctgatgct 20

<210> 25
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 25
tccatgtcgg tcctgacgca 20

<210> 26
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 26
tcaacggt 8

<210> 27
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 27
tcaagctt 8

<210> 28
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 28
tcagcgct 8

<210> 29
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 29
tcttcgat 8

<210> 30
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 30
tcttcgaa

8

<210> 31
<211> 7
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 31
caacggtt

7

<210> 32
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 32
ccaacggtt

8

<210> 33
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 33
caacgttct

9

<210> 34
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 34
tcaacgtc

8

<210> 35
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 35
atggactctc cagcgttctc

20

<210> 36
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 36
ataggaggtc caacgttctc

20

<210> 37
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 37
atcgactctc gacggttctc

20

<210> 38
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 38
atggaggctc catcggttctc

20

<210> 39
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (3)...(3)

<223> m5c

<221> modified_base

<222> (11)...(11)

<223> m5c

<221> modified_base

<222> (15)...(15)

<223> m5c

<400> 39

atcggactct cgagcgttct c

21

<210> 40

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<221> modified_base

<222> (14)...(14)

<223> m5c

<400> 40

atcgactctc gagcgttctc

20

<210> 41

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 41

gcatgacgtt gagct

15

<210> 42

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<400> 42

tccatgtcgg tctgatgct

20

<210> 43

<211> 20

<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 43
tccatgccgg tctgatgct 20

<210> 44
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 44
tccatggcgg tctgatgct 20

<210> 45
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 45
tccatgacgg tctgatgct 20

<210> 46
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 46
tccatgtcga tctgatgct 20

<210> 47
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 47
tccatgtcgc tctgatgct 20

<210> 48
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 48
tccatgtcgt tcctgatgct 20

<210> 49
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 49
tccataacgt tcctgatgct 20

<210> 50
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 50
tccatgacgt ccctgatgct 20

<210> 51
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 51
tccatcacgt gcctgatgct 20

<210> 52
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 52
ggggtcaacg ttgacgggg 19

<210> 53
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 53
ggggtcagtc gtagcggg

19

<210> 54
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 54
gctagacgtt agtgt

15

<210> 55
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (7)...(7)
<223> m5c

<400> 55
gctagacgtt agtgt

15

<210> 56
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 56
tccatgtcgt tctgatgct

20

<210> 57
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (8)...(8)
<223> m5c

<400> 57
tccatgtcgt tctgatgct 20

<210> 58
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 58
accatggacg atctgtttcc cctc 24

<210> 59
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 59
tctcccagcg tgcgccat 18

<210> 60
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 60
taccgctgc gaccctct 18

<210> 61
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 61
accatggacg aactgtttcc cctc 24

<210> 62
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 62
accatggacg agctgtttcc cctc 24

<210> 63
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 63
accatggacg acctgtttcc cctc 24

<210> 64
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 64
accatggacg tactgtttcc cctc 24

<210> 65
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 65
accatggacg gtctgtttcc cctc 24

<210> 66
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 66
accatggacg ttctgtttcc cctc 24

<210> 67
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 67
cacgttgagg ggcac 15

<210> 68
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 68
ctgctgagac tggag 15

<210> 69
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 69
tcagcgtgcg cc 12

<210> 70
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 70
atgacgttcc tgacgtt 17

<210> 71
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 71
tctcccagcg ggccat 17

<210> 72
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 72
tctcccagcg cgcgccat 18

<210> 73
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 73
tccatgtcgt tctgtcgtt 20

<210> 74
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 74
tccatagcgt tcttagcgtt 20

<210> 75
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 75
tcgtcgtgt ctccgcttct t 21

<210> 76
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 76
tcttgacgtt cctgacgtt 19

<210> 77
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 77
tcctgtcggt cctgtcggt 19

<210> 78
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 78
tccatgtcgt ttttgtcggt 20

<210> 79
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 79
tcctgtcggt ccttgcgtt 20

<210> 80
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 80
tccttgcgt tcctgtcggt 20

<210> 81
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 81
tcctgtcggt ttttgtcggt 20

<210> 82
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 82
tcgtcgctgt ctgcccttct t 21

<210> 83
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 83
tcgtcgctgt tgcgtttct t 21

<210> 84
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<221> modified_base
<222> (8)...(8)
<223> m5c

<221> modified_base
<222> (17)...(17)
<223> m5c

<400> 84
tccatgtcgt tcctgtcgtt 20

<210> 85
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 85
tccaggactt ctctcaggtt 20

<210> 86
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 86
tccatgcgtg cgtgcgtttt 20

<210> 87
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 87
tccatgcggtt gcgttgcgtt

20

<210> 88
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 88
tccacgacgt ttgcgacgtt

20

<210> 89
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 89
tcgtcgttgcgtt cggttcggtt

20

<210> 90
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 90
tcgtcgttttt gtcgttttgcgtt

24

<210> 91
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 91
tcgtcgttgcgtt cggttttgcgtt

22

<210> 92
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 92
gcgtgcgttg tcgttgcgt t 21

<210> 93
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 93
gcggcgggcg gcgcgcgcc 20

<210> 94
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 94
tgtcgtttgt cgtttgcgt t 21

<210> 95
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 95
tgtcgttgtc gttgtcgttg tcgtt 25

<210> 96
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 96
tgtcgttgtc gttgtcgtt 19

<210> 97
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 97
tcgtcgtcgt cggt 14

<210> 98
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 98
tgtcggtggtc gtt 13

<210> 99
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 99
tccatagcgt tcctagcgtt 20

<210> 100
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 100
tccatgacgt tcctgacgtt 20

<210> 101
<211> 6
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 101
gtcgyt 6

<210> 102
<211> 7
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 102
tgtcgyt

7

<210> 103
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 103
tccatgagct tcttgagtct

20

<210> 104
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 104
tctcccagcg tgcgccat

18

<210> 105
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 105
tccatgacgt tctgacgtt

20